



PATENT  
Attorney Docket No. 056258-5091-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	)	
	)	
Inventors: Janos VERES et al.	)	
	)	
Appln. No. 10/523,644	)	Group Art Unit: 2823
	)	
Filed: September 6, 2005	)	Examiner: Coleman, W.D.
	)	
For: ORGANIC ELECTRONIC DEVICES	)	

**RESPONSE TO OFFICE ACTION**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir:

In response to the Office Action dated October 26, 2006, reconsideration of this application is requested in view of the following comments on the Examiner's rejections.

The Examiner has rejected claims 1-6, 12-26 and 28-35 under Section 102(a) as anticipated by Holdcroft, "Patterning  $\pi$  Conjugated Polymers", Advanced Materials, 13(23):1753-1765 (December 3, 2001).

Claims 7-11 have been rejected under Section 103(a) as obvious from Holdcroft.

As the Examiner will appreciate, the Holdcroft et al. reference is acknowledged in the applicants' specification at page 1, 4th ¶.

The Examiner is respectfully requested to reconsider the Section 102(a) and Section 103(a) rejections for the reasons noted below which show that the applicants' invention is neither disclosed by Holdcroft et al. nor obvious therefrom.

With respect to the Section 102(b) rejection, it is noted that applicants' claim 1 is directed to a method of forming an organic electronic device by forming a negative image of a desired pattern on a substrate with a lift-off ink (step a), followed by coating first and second device layers, and optionally further device layers (steps b,

c) on top of the negative image. In the final step (d), the lift-off ink and thereby also the parts of the layers covering the lift-off ink, are removed from the substrate, leaving the desired pattern of device layers ("positive image").

The Examiner argues that step (a) of the method of claim 1 would be anticipated by Holdcroft because Holdcroft discloses on page 1757, 2nd Column, 2nd ¶, a "negative tone resist", and on page 1758, 2nd Column, 3rd ¶, a "lift-off procedure".

However, the term "negative" in the Holdcroft article is used in a completely different context than in the method of applicants' claim 1. Holdcroft merely discloses that "Perfluorophenyl bisazides have been used to design deep-UV and electronbeam P3AT-based negative tone resists".

Attached is a description of the term "negative tone resist" which applicants have found on the Internet. Also attached is another review article (Shaw et al., "Negative photoresists for optical lithography", IBM Journal of Research and Development, 41(1/2):81-94 (1997)).

A "negative tone resist" simply means a specific type of photoresist (usually a polymer) that is used in a photopatterning process, of which the solubility in a developer is decreased by a photochemical reaction. Consequently, after photopatterning the exposed (and thus chemically altered) parts of the negative tone resist are not removed by the developer, while the unexposed (and thus unaltered) parts of the negative tone resist are removed. In contrast, a "positive tone resist means" a photoresist of which the solubility in a developer is increased by a photochemical reaction. Consequently, after photopatterning the exposed (and thus chemically altered) parts of the positive tone resist are removed by the developer, while the unexposed (and thus unaltered) parts of the positive tone resist are not removed. Examples of conventional negative and positive tone resists are also given.

Similarly, the term "lift-off procedure" in the Holdcroft article is used in a completely different context than in the method of applicants' claim 1. Holdcroft merely discloses that "a technique to fabricate vacuum deposited organic LEDs has been reported, which uses conventional photoresist lift-off procedures with vapor deposition of the organic material and metal cathode ...".

In contrast, step (a) of the method of applicants' claim 1 mentions that a negative image is formed by providing a lift-off ink on a substrate. This is not anticipated by the terms "negative tone resist" or "photoresist lift-off procedure" as disclosed in the cited passages of Holdcroft. The mentioning of a "negative tone resist"

does not automatically imply a process where a negative image is formed directly on a substrate as the applicants require. Furthermore, the mentioning of a "photoresist lift-off procedure" does not imply a process where a lift-off ink is used for the formation of a negative image. Furthermore, the applicants' method does not require the use of photoresists or photopatterning methods to form a patterned image. Instead, the pattern in applicants' method can be achieved by direct application of the lift-off ink on the substrate, e.g. by printing. Thus, in short, Holdcroft does not anticipate applicants' step (a).

Regarding applicants' step (b), the Examiner argues that this is anticipated by Figure 9 of Holdcroft. Figure 9 only shows that a dielectric layer, a semiconductor layer and electrode layers are printed on a metal coated plastic substrate. Figure 9 does not disclose or suggest a process where a device layer is coated on top of a negative image (which is afterwards to be removed). Step (b) has to be interpreted in connection with step (a) and cannot be considered isolated from step (a). Therefore, Figure 9 does not anticipate step (b) of the applicants' method as defined by claim 1. In the circumstances, the applicants submit that Holdcroft does not in any sense anticipate applicants' claim 1. Furthermore, it is noted that the Examiner has not shown that applicants' steps (c) and (d) are disclosed by Holdcroft. This is a further basis for concluding that applicants' claim 1 is not in any sense anticipated by Holdcroft.

The comments made above are also applicable to claims 2-6, 12-26 and 28-35 as all of these claims depend from claim 1, directly or indirectly. In brief, there is nothing in Holdcroft disclosing the features of the dependent claims in the context of a method as defined in claim 1. Accordingly, it is requested that the Examiner withdraw the Section 102(a) rejection based on Holdcroft.


The Examiner is also requested to reconsider and withdraw the Section 103(a) rejection of claims 7-11 as unpatentable over Holdcroft. The reference does not make the invention called for in claims 7-11 obvious.

Since the Holdcroft reference fails to disclose the applicants' method of claim 1, the passages of Holdcroft cited by the Examiner in connection with claims 7-11 cannot render these claims obvious. Therefore, the subject matter of our claims 7-11 is clearly inventive over Holdcroft. Accordingly, it is submitted that the Section 103(a) rejection of claims 7-11 should be withdrawn.

The application is thought to be allowable for the reasons noted. Accordingly, favorable reconsideration is requested.

Respectfully submitted,

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